



National Transportation Safety Board Aviation Accident Final Report

Location:	CONWAY, SC	Accident Number:	MIA98LA226
Date & Time:	08/15/1998, 0955 EDT	Registration:	N3981Z
Aircraft:	Piper PA-18-150	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Minor
Flight Conducted Under:	Part 91: General Aviation -		

Analysis

The pilot was attempting a banner tow pick up when the left wing collapsed. Examination of the left wing forward and aft attachment fitting by the NTSB Materials Laboratory revealed the failure of the brackets due to corrosion and fatigue.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The total failure of the left wing forward and aft attachment fitting due to corrosion and fatigue during a banner tow pick-up resulting in a subsequent in-flight collision with terrain.

Findings

Occurrence #1: AIRFRAME/COMPONENT/SYSTEM FAILURE/MALFUNCTION
Phase of Operation: MANEUVERING

Findings

1. WING,WING ATTACHMENT FITTING - FAILURE,TOTAL
2. (C) WING,WING ATTACHMENT FITTING - CORRODED
3. (C) WING,WING ATTACHMENT FITTING - FATIGUE

Occurrence #2: IN FLIGHT COLLISION WITH TERRAIN/WATER
Phase of Operation: OTHER

Findings

4. TERRAIN CONDITION - GROUND

Factual Information

On August 15, 1998, about 0955 eastern daylight time, a Piper PA-18-150, N3981Z, registered to Sky Signs Inc., operating as a 14 CFR Part 91 banner tow flight, crashed while attempting a banner tow pick-up at the Sky Signs private airstrip, Conway, South Carolina. Visual meteorological conditions prevailed and no flight plan was filed. The airplane sustained substantial damage. The commercial pilot reported minor injuries. The flight originated about 5 minutes before the accident.

An FAA inspector who observed the accident stated the pilot was picking up a banner on runway 34. The airplane picked up the banner and was in about a 30-degree nose-up attitude when the left wing collapsed. The airplane rolled to the right about 300 degrees, the nose pitched down, and the airplane collided with the ground inverted. Examination of the left wing revealed the left forward lift strut attachment fitting was severely corroded.

The separated left wing forward and aft strut attachment fitting, and the right wing forward and aft attachment fitting were sent to the NTSB Materials Laboratory for analysis. Examination revealed the front face of the forward bracket was subjected to severe corrosion damage. The bracket separated approximately 2.8 inches away from its inboard lower end, at a location corresponding to a vertical position on assembly that is in line with or just below the lower spar cap of the forward spar. Evidence of corrosion was also apparent on the upper and lower sides of the bracket. Binocular microscope examination revealed that the most corrosion damage was on the front face of the bracket. Examination of the aft bracket revealed that it separated through the lower of the five holes used to attach the bracket to the front spar. Binocular microscope examination revealed that a portion of the aft bracket fracture was on a flat plane and contained crack arrest positions typical of fatigue cracking. (For additional information see NTSB Materials Laboratory Factual Report No. 99-49.)

The components retained for further analysis were released to M. Jenkins, Sky Signs Inc., on February 12, 1999.

Pilot Information

Certificate:	Flight Instructor; Commercial	Age:	26
Airplane Rating(s):	Multi-engine Land; Single-engine Land	Seat Occupied:	Front
Other Aircraft Rating(s):	None	Restraint Used:	Seatbelt, Shoulder harness
Instrument Rating(s):	Airplane	Second Pilot Present:	No
Instructor Rating(s):	Airplane Single-engine	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	07/01/1998
Occupational Pilot:	Last Flight Review or Equivalent:		
Flight Time:	1050 hours (Total, all aircraft), 700 hours (Total, this make and model), 500 hours (Last 90 days, all aircraft), 200 hours (Last 30 days, all aircraft), 6 hours (Last 24 hours, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N3981Z
Model/Series:	PA-18-150 PA-18-150	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	No
Airworthiness Certificate:	Restricted	Serial Number:	18-7924
Landing Gear Type:	Tailwheel	Seats:	2
Date/Type of Last Inspection:	08/05/1998, 100 Hour	Certified Max Gross Wt.:	1700 lbs
Time Since Last Inspection:	50 Hours	Engines:	1 Reciprocating
Airframe Total Time:	9731 Hours	Engine Manufacturer:	Lycoming
ELT:		Engine Model/Series:	O-360-A4M
Registered Owner:	SKY SIGNS INC	Rated Power:	
Operator:	SKY SIGNS INC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Instrument Conditions	Condition of Light:	Day
Observation Facility, Elevation:	MYR, 0 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	0945 EDT	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 3000 ft agl	Visibility	4 Miles
Lowest Ceiling:	Broken / 15000 ft agl	Visibility (RVR):	0 ft
Wind Speed/Gusts:	6 knots /	Turbulence Type Forecast/Actual:	/
Wind Direction:	20°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29 inches Hg	Temperature/Dew Point:	27° C / 24° C
Precipitation and Obscuration:			
Departure Point:	(NONE)	Type of Flight Plan Filed:	None
Destination:		Type of Clearance:	None
Departure Time:	0950 EDT	Type of Airspace:	Class G

Airport Information

Airport:		Runway Surface Type:	Grass/turf
Airport Elevation:	29 ft	Runway Surface Condition:	Dry
Runway Used:	34	IFR Approach:	None
Runway Length/Width:	1800 ft / 100 ft	VFR Approach/Landing:	

Wreckage and Impact Information

Crew Injuries:	1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	N/A	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Minor	Latitude, Longitude:	

Administrative Information

Investigator In Charge (IIC):	CARROL A SMITH	Report Date:	04/19/2001
Additional Participating Persons:	JAMES A MALEK; WEST COLUMBIA, SC PAUL LEHMAN; VERRA BEACH, FL		
Publish Date:			
Investigation Docket:	NTSB accident and incident dockets serve as permanent archival information for the NTSB's investigations. Dockets released prior to June 1, 2009 are publicly available from the NTSB's Record Management Division at pubinq@ntsb.gov , or at 800-877-6799. Dockets released after this date are available at http://dms.nts.gov/pubdms/ .		

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